

June 16, 1925.

L. FLICK

1,541,806

MACHINE FOR ORNAMENTING FABRICS.

Filed July 30, 1923

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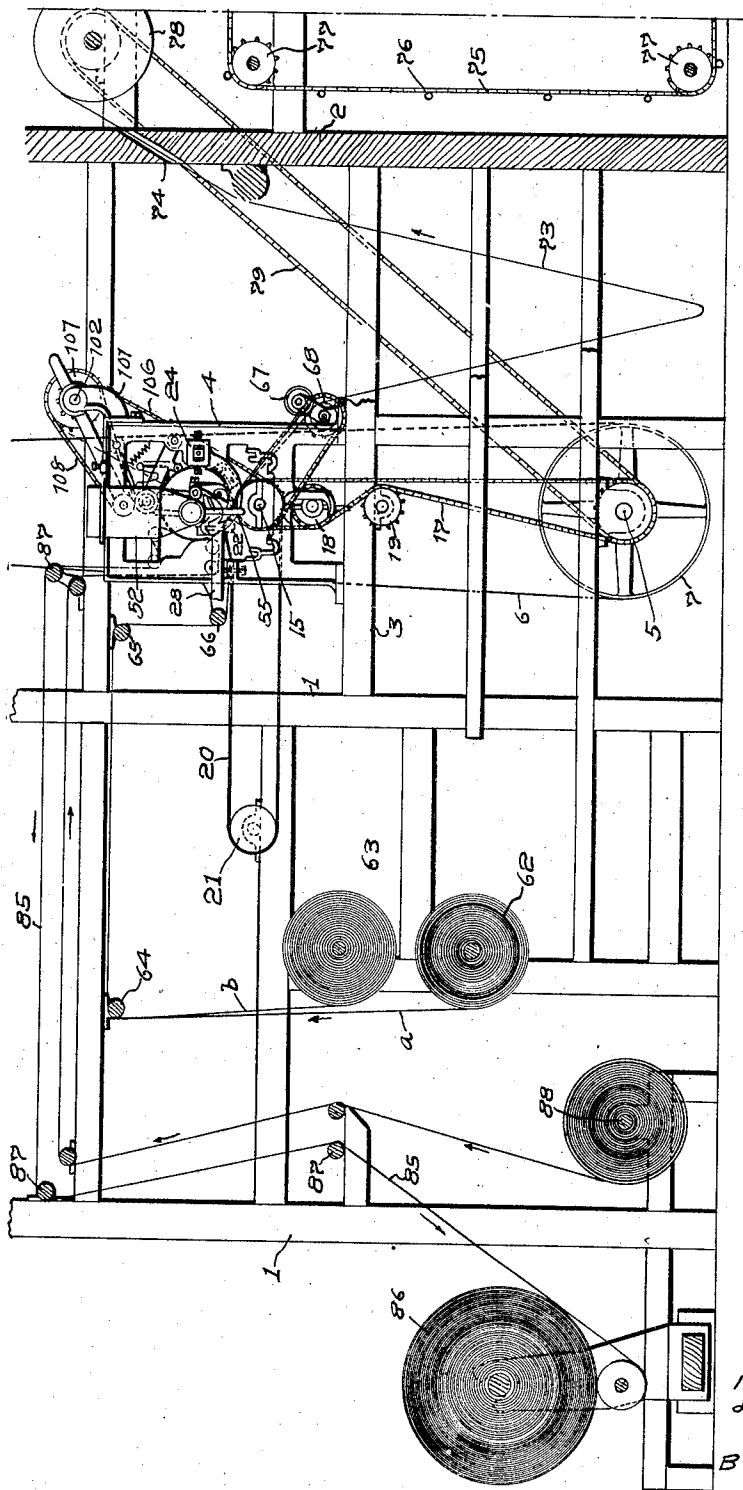


Fig. 1

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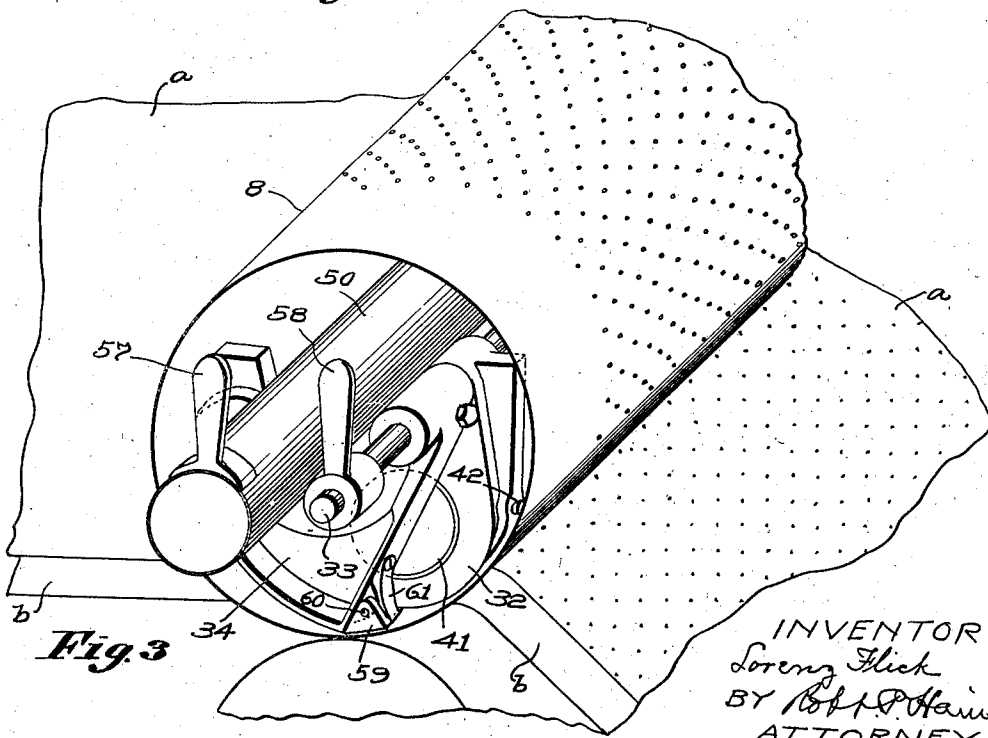
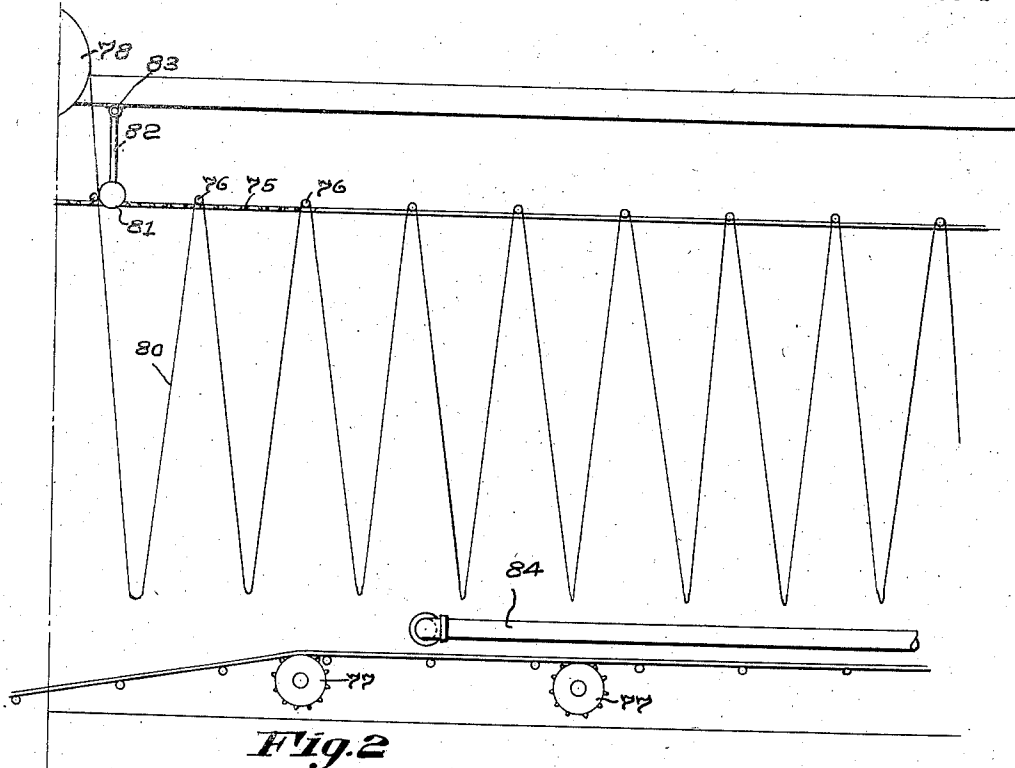
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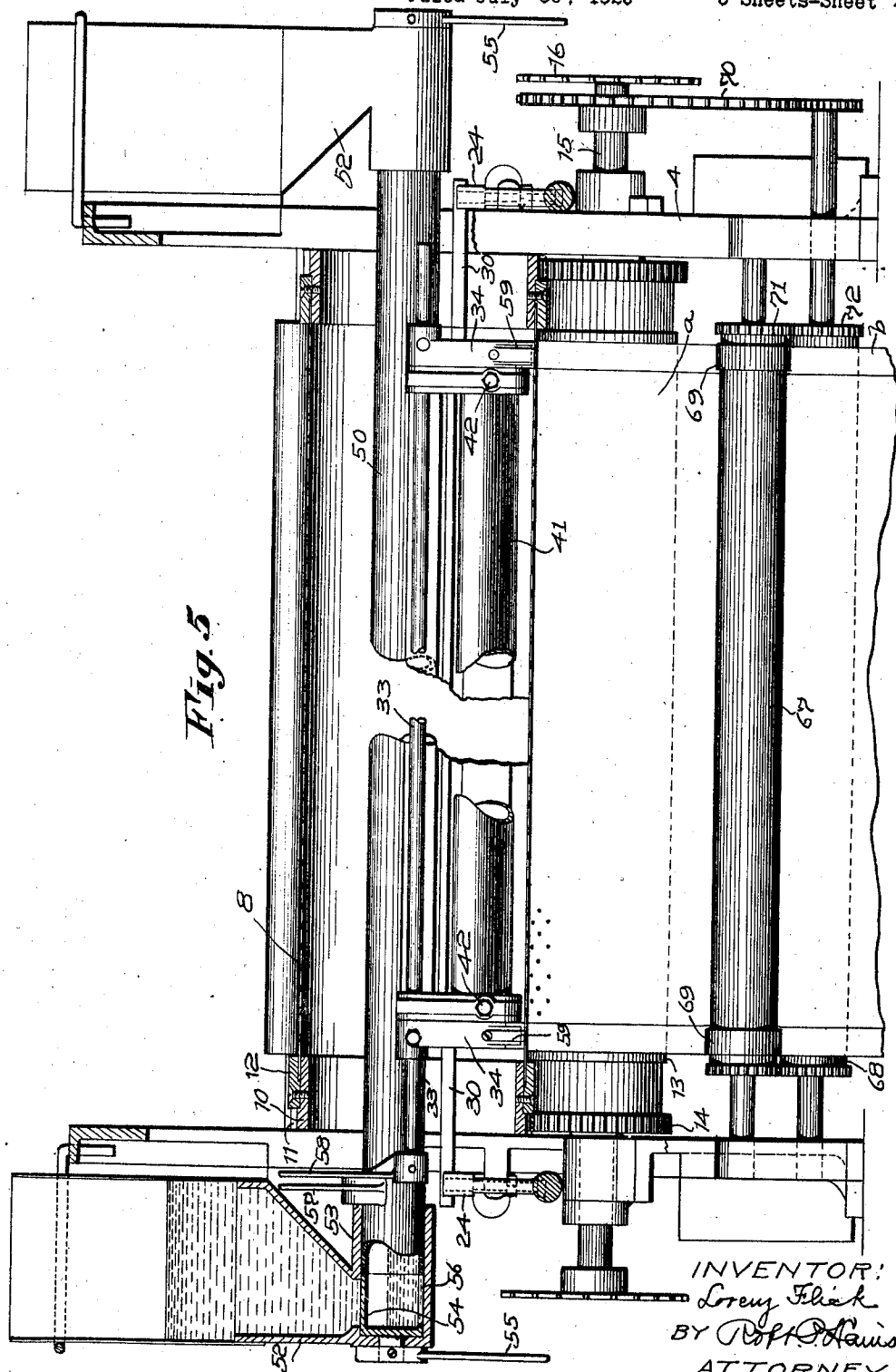
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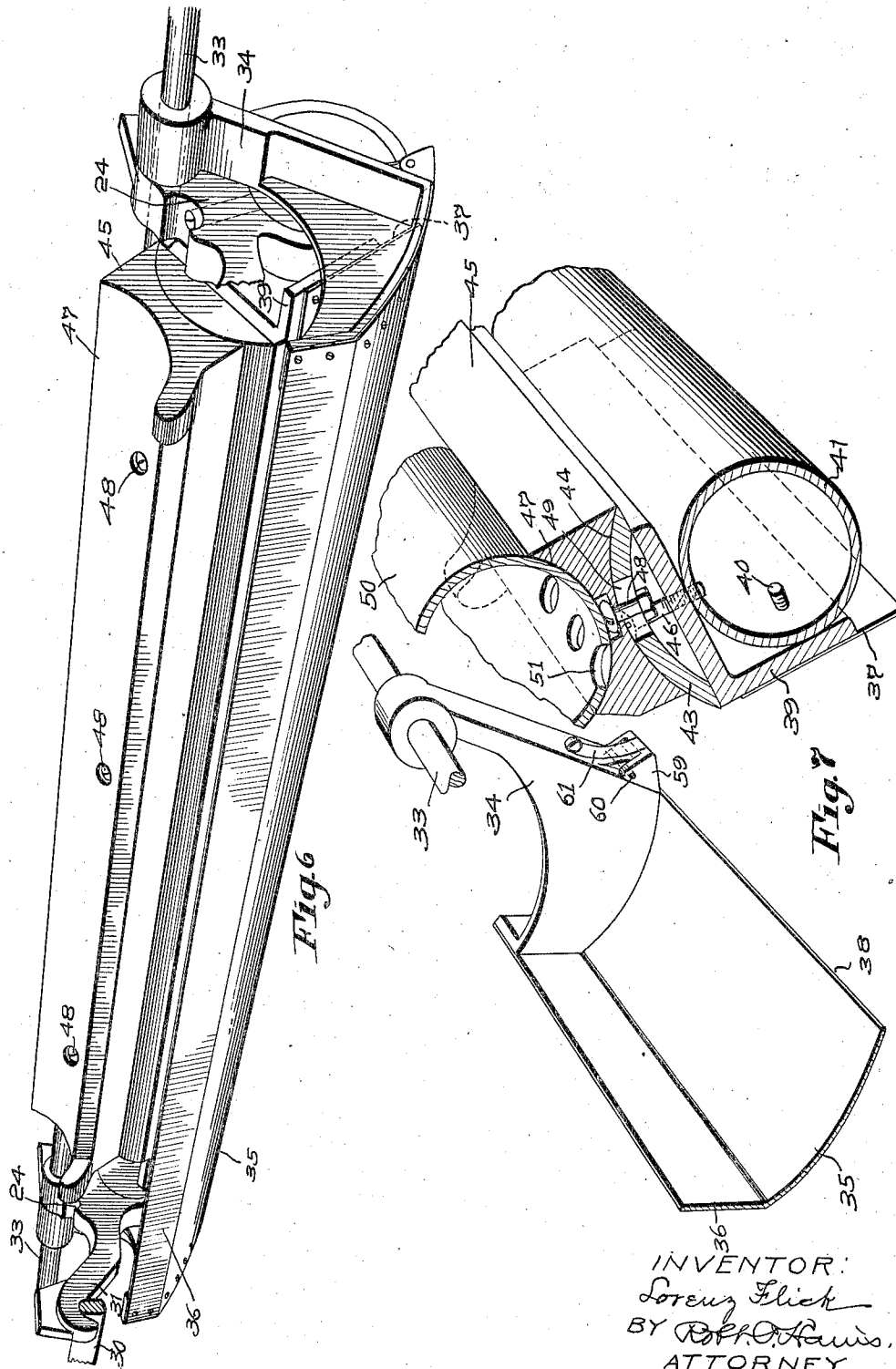
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MACHINE FOR ORNAMENTING FABRICS

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5 Sheets-Sheet 5



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MACHINE FOR ORNAMENTING FABRICS.

Application filed July 30, 1923. Serial No. 654,597.

To all whom it may concern:

Be it known that I, LORENZ FLICK, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented an Improvement in Machines for Ornamenting Fabrics, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to machines for ornamenting fabrics and more particularly to machines for depositing a liquid or plastic material upon the fabric for ornamental effect.

One of the objects of the present invention is to provide a machine of the general character above stated which shall be simple in construction and effective in operation and wherein the association of parts is such that ornaments of a liquid or plastic nature may be deposited upon the fabric as it is being passed through the machine.

The machine which forms the subject matter of the present invention is adapted to apply to a fabric ornaments or deposits of any character of liquid or plastic material but the advantages of the invention are particularly manifested in a machine for applying deposits of phenol formaldehyde condensation products upon the fabric. It is characteristic of such condensation products that at an intermediate stage of the chemical reactions which produce them, the products are fusible and plastic, but through the action of heat or heat and pressure they can be converted into the final products which are hard, insoluble and non-thermo-plastic.

In accordance with the present invention, therefore, there is associated with the mechanism for applying the deposits to the fabric a heat treating chamber through which the cloth or fabric is passed after it has received deposits of the material. In case a phenol condensation product is employed in ornamenting the cloth, the degree of heat in the heating chamber will be made sufficient to bring about the final reaction which produces the final phenol condensation product.

If the condensation products are applied while in a plastic condition to woven or

other fabric formed of fibres, the fibres will be more or less embedded in the deposits, and when these deposits are rendered hard and durable by the action of heat or other agent, the fibres embedded in these hard deposits will permanently secure the deposits to the fabric so that they will not be softened or displaced when subjected to heat or moisture. In this manner deposits resembling glass beads in hardness, durability and appearance may be permanently secured to the fabric.

The various novel features of the invention and new combination of parts will best be made clear from the following description and the accompanying drawings of one good form of the machine embodying the invention.

In the drawings:

Fig. 1 is a side elevation, partly in section, showing a machine for ornamenting fabrics, containing the present invention, some of the parts being broken away for clearness of illustration;

Fig. 2 is a side elevation of the interior portion of the heating chamber through which the ornamented fabric is passed from the machine where the ornaments are applied;

Fig. 3 is a perspective view of the stenciling cylinder and some of the associated parts within the cylinder, and also showing the fabric and back grey being passed between the cylinder and the supporting surface beneath;

Fig. 4 is a sectional elevation on an enlarged scale showing the parts associated with the ornament applying mechanism;

Fig. 5 is a section on the line 5-5 of Fig. 4;

Fig. 6 is an enlarged perspective detail showing the construction of the receptacle within the stenciling cylinder for containing the ornamenting material; and

Fig. 7 is an enlarged detail partly in section showing portions of the container, shutter, doctor, and supply pipe, some of the parts being in separated relation for clearness of illustration.

The machine for supporting the operating parts may be variously contrived and as shown in the present instance comprises the side frames 1 formed of upright and horizontal members disposed in suitable

relation for sustaining the machine parts. Associated with the main machine frame is the drying chamber which is separated therefrom by a wall 2 having a perforation for the entrance of the ornamented fabric as will presently appear.

Mounted upon the main frame of the machine, as shown, upon the longitudinal parts 3 is the frame 4 constructed and arranged to support the parts of the machine more particularly associated with the ornamenting mechanism.

Mounted at the lower portion of the main machine frame, as shown, is the shaft 5 which constitutes the main drive shaft, and may itself be driven from a suitable source of power, as by means of the belt 6 which passes around the pulley 7 secured to the shaft 5. The various operative parts of the machine may be conveniently driven from the shaft 5, but the invention is not necessarily restricted to the particular driving means indicated.

In accordance with the present invention the liquid or plastic material to be deposited on the cloth in the form of ornaments is delivered from the interior of a stenciling cylinder and placed upon the cloth, which is itself supported by a back grey of greater width than the fabric to be ornamented, and both the fabric and back grey are moved between the stenciling cylinder and the support to receive the deposits of the ornamenting material upon the cloth. When the deposits of the ornamenting material have been made, the cloth and back grey are withdrawn from the "printing point" by means which engage the marginal portions of the back grey without touching the ornamenting material upon the cloth, and both are delivered to the heat treating chamber, as will be more fully described.

Between the side frames 4, hereinbefore referred to, on which are supported the mechanism associated with the ornamenting devices, is the stenciling cylinder 8 having openings in its cylindrical wall through which the ornamenting material may be delivered to the cloth. In the present instance, the stenciling cylinder 8 has its opposite ends open, as indicated in Fig. 5, and the cylinder itself is supported by the segment blocks 9, Fig. 4, which are secured to the machine frame 4. The segment blocks 9, two at each side of the machine, engage the end portions of the stenciling cylinder outside the stenciling surface. As shown, the stenciling cylinder 8 has the end portions 10 provided with gear teeth 11, and secured to the end portions 10 of the stenciling cylinder is a plate 12 between which and the end portions 10 of the stenciling cylinder are secured the edge portions of the cylindrical shell forming the stenciling surface of the cylinder. The cap pieces or rings 12 thus

afford a convenient means for supporting the stenciling cylinder upon the segmental supports 9.

Mounted in suitable bearings below the stenciling cylinder 8 is the rubber roll 13 having a gear 14, Figs. 4 and 5, for driving the stenciling cylinder. The shaft 15 of the rubber roll extends beyond the side frame 4 of the machine and is provided with a sprocket wheel 16 about which passes the sprocket chain 17 which may be driven from the driving shaft 5, as indicated in Fig. 1. Between the rubber roll 13 and the driving shaft 5 the sprocket chain 17 passes around the belt tightener 18 and over a guide 19, the construction being such that any slack in the sprocket chain 17 may be taken up by the belt tightener to thereby effect positive drive of the rubber roll 13. The construction thus far described is such that when the driving shaft 5 is rotated through the train of mechanism described and by the gearing connection between the rubber roll 13 and the stenciling cylinder, the latter will be rotated as indicated by the arrows in Fig. 4.

It is sometimes desirable to employ a rubber apron in addition to the rubber roll 13, between which parts and the stenciling cylinder the cloth on the back grey is fed. In the present instance the rubber apron 20 has a portion thereof passed about the rubber roll 13 and another portion passed about the guide roll 21 mounted on the main machine frame. Inasmuch as the ornamenting material within the cylinder may percolate through the openings in the cylindrical wall under certain conditions, as, for instance, when the machine is stopped for any purpose, it is desirable that the rubber apron 20 be carried about the stenciling cylinder an appreciable amount to cover the openings in the cylinder that underlie the ornamenting material which may be seeking egress through the openings in the cylinder. To this end the present invention provides means for deflecting the rubber apron 20 which, as shown, consists of a roll 22 extending between the side frames of the machine and having its upper surface above the upper surface of the rubber roll 13. Likewise a guide roll 23 is provided, the construction being such that the apron 20 passes under the guide roll 23 and over the guide roll 22, and the portion of the apron between the guide roll 22 and the rubber roll 13 bears upon the extended surface of the stenciling cylinder in advance of the printing point.

Within the stenciling cylinder is provided a receptacle for containing the ornamenting material and also a supply pipe or element for supplying the receptacle with material from time to time.

Mounted at opposite sides of the machine

frame 4 are the brackets 24, one at each side of the machine, as indicated in Figs. 1, 4 and 5. The brackets 24 have an opening 25 into which extends the swivel block 26 mounted on the machine frame. At each side of the block 26 the bracket 24 has the adjusting screws 27 whereby the block as a whole may be adjusted horizontally to change the position of the receptacle within the stenciling cylinder, as will presently appear. Each of the brackets 24 has an arm 28 extending to the opposite side of the stenciling cylinder, as indicated in Figs. 1 and 4, and a set screw 29 on the machine frame adjacent each of the arms 28 serves as a means of moving the associate bracket 24 in a vertical plane about the pivotal mounting of the bracket 24.

Each of the brackets 24, as hereinbefore stated, extends transversely of the open end of the stenciling cylinder and serves to support a fulcrum bar 30 which passes longitudinally through the stenciling cylinder, as indicated in Figs. 4 and 5. The receptacle for the ornamenting material is supported and positioned by the fulcrum bar 30, and comprises the hangers 31, one at each end of the stenciling cylinder, which rests upon the fulcrum bar, and from the bar 30 extend the bracket portions 32. Between the bracket portions 32 is journaled a rod or shaft 33, Figs. 4, 6 and 7, to which are secured the side members 34 having their end portions connected by a shutter 35 and longitudinal flange 36, thus constituting a portion of the receptacle for the ornamenting material. The other portion of the receptacle for the ornamenting material is formed by a doctor 37, Figs. 4, 6 and 7, against which the edge portion 38 of the shutter normally rests, the construction so far described being such that the receptacle for the ornamenting material within the stenciling cylinder is formed of the doctor 37, constituting one portion of the receptacle and the arms 34, shutter 35 and flange 36 constituting another member of the receptacle.

Since the receptacle for the ornamenting material within the cylinder is hung upon the fulcrum bar 30, hereinbefore described, it follows that the lower edge of the doctor 37 will rest upon the inner surface of the stenciling cylinder and constitute another support for the receptacle. Moreover, since the material within the receptacle may be of plastic nature, it is desirable that the doctor shall be inclined with respect to the inner surface of the stenciling cylinder and that such inclination of the doctor may be adjusted from time to time to suit different conditions of the ornamenting material and cause it to be forced through the openings in the stenciling cylinder onto the cloth beneath.

In the present instance, the doctor 37 is mounted upon an angle iron 39, Fig. 7, which is itself secured by bolts such as 40 to a tube 41 extending through the stenciling cylinder. In the present instance the tube 41 is constituted as a pipe which may be utilized for the introduction of heat for the parts within the stenciling cylinder. The pipe 41 is secured to the side portions 32 of the hangers 31 by suitable bolts 42, as indicated in Figs. 3 and 4, and when it is desired to adjust the doctor to a different inclination the clamping bolts 42 are relieved and the pipe 41 turned in the desired direction to impart the desired inclination to the doctor 37 secured thereto, whereupon the bolts 42 are set up and the parts remain in adjusted position.

Secured to the angle iron 39 and also if desired to the pipe 41 is a guide 43 having a curved surface 44 on which rests the reversely curved surface of a supply pipe supporting bed 45. In the present instance the guide 43 is shown as secured to the angle iron and pipe 41 by bolts 46.

The supply pipe supporting bed 45 has a supporting surface 47 extending longitudinally through the stenciling cylinder and set screws or bolts 48 serve to secure the supply pipe supporting bed 45 upon the guide 43. In order that the doctor and pipe 41 may be adjusted angularly with respect to the inner surface of the stenciling cylinder, as hereinbefore indicated, without disturbing the relation of the supply pipe supporting bed 45 and the stenciling cylinder, the bolts 48 are passed through elongated openings 49 in the guide 43, and when the doctor is to be angularly adjusted the bolts 48 are loosened to permit the guide 43 to move with the angle iron relative to the supply pipe supporting bed.

Resting upon the surface 47 of the supply pipe supporting bed 45 is the supply pipe 50 which extends longitudinally of the stenciling cylinder and through its open ends, as indicated in Figs. 3 and 5. The supply pipe 50 has one or more openings 51 in its lower surface through which material from the supply pipe 50 may be passed to the receptacle for the ornamenting material when the supply pipe 50 is turned upon its longitudinal axis, as will presently be explained.

Mounted upon each end of the supply pipe 50 is a reservoir 52 for the ornamenting material, and each reservoir has a hub portion 53 into which the end of the pipe 50 extends. Mounted in the hub portion 53 of the reservoir is a rotary valve 54 having a handle 55, Fig. 5, by which the material in the upper part of the reservoir, as indicated in Fig. 5, may be permitted to pass through the opening 56 in the valve to the supply pipe 50.

In order that the ornamenting material in the supply pipe 50 may be discharged into the receptacle beneath, the pipe 50 is provided at one end with a handle 57 whereby the pipe 50 may be rotated upon its longitudinal axis to bring the openings 51 beyond the curved surface of the supply pipe supporting bed 45, whereupon the material in the supply pipe will pass to the receptacle beneath and be held therein until the shutter and doctor are relatively moved to permit the material to pass from the receptacle to the inner surface of the stenciling cylinder.

15 In order to form a passageway between the doctor 37 and the edge 38 of the shutter 35, the shaft 33, Figs. 3 and 5, is provided with a handle 58 whereby the shaft 33 may be rotated and the shutter moved away from the doctor to provide a passage for the ornamenting material.

When the shutter has been moved as described, it is desirable to prevent the ornamenting material from passing through the ends of the opening formed between the shutter and doctor, and to this end the side members 34 of the shutter mechanism have the end guards 59 which are pivotally connected thereto at 60 and are normally under the influence of a spring 61 tending to hold the guard 59 in its operative position closing the end portion of the passage between the doctor and the edge 38 of the shutter.

As indicated in Fig. 4, the lower edge portion of the doctor normally rests upon the inner surface of the cylinder substantially at the printing point or the place where the ornamenting material is forced by the inclined doctor through the openings in the stenciling cylinder. It is sometimes desirable to not only vary the inclination of the doctor but to vary the position of the receptacle within the cylinder horizontally and vertically in order to vary the position of the acting edge of the doctor on the inside of the cylinder, and to this end the brackets 24 may be adjusted, as hereinbefore described, either horizontally by the adjusting screws 27 or vertically by the adjusting screws 29.

The cloth or fabric *a* on which the ornaments are to be placed may be furnished from a suitable supply, as also may be the back grey *b* on which the fabric is placed and by which the fabric is fed. In the present instance the fabric or cloth is wound in the form of a roll 62, Fig. 1, and supported by the machine frame, while the back grey is likewise mounted in the form of a roll 63 upon the machine frame. The back grey, as hereinbefore stated, is wider than the cloth and they are led together from their respective rolls over suitable guides 64, 65 and 66 onto the surface of the rubber apron 20 and travel with the apron to the printing point

between the stenciling cylinder and the apron beneath. As the stenciling cylinder is rotated by means such as hereinbefore described, the fabric or cloth *a* has deposited thereon the ornamenting material in accordance with the design of the stenciling cylinder. In the present instance the ornamentations are shown as small beads, but of course the form and character of the ornamentations will be varied in accordance with the desire of the manufacturer. From the printing point the cloth and back grey are drawn by the driving rolls 67 and 68 between which the ornamented cloth and back grey pass, as indicated in Fig. 4. In order that the ornaments on the fabric may not be injured as the cloth passes between the rolls 67 and 68, the rolls are provided with flanges or collars 69, Fig. 5, which engage the exposed side marginal portions of the back grey *b* and act thereon to draw the back grey and strips of ornamented fabric through the machine. One of the rolls 67 or 68 may be driven from the shaft 15 of the rubber roll by means of a belt or sprocket chain 70, as indicated in Figs. 4 and 5, and the two rolls 67 and 68 are preferably geared together by the gears 71 and 72, as indicated in Figs. 4 and 5, so that they rotate in unison.

Where the ornamenting material deposited upon the cloth or fabric is a phenol condensation product which becomes practically insoluble and non-thermoplastic by heat treatment, the back grey and ornamented fabric or cloth *a* are passed from the drawing rolls 67 and 68 after being looped as at 73, Fig. 1, through an opening 74 in the partition 2 separating the machine proper from the heating chamber.

In the present instance of the invention, the heat chamber has mounted therein the endless chain or carrier 75 provided with the cross supporting rods 76 extending between the chain at each side of the heating chamber. The chains or carriers 75 are passed about the rolls 77 in the heating chamber and pursue an endless path of travel, being driven from any suitable source of power.

Mounted at the top of the heating chamber is a cloth drawing roll 78 which may be driven as by the sprocket chain 79 from the driving shaft 5, as indicated in Fig. 1, to draw or pull the ornamented cloth and back grey and deliver them in loop formation, as indicated at 80, onto the cross bars 76 of the endless carriers 75. To insure the proper formation of the loops 80 of the ornamented cloth and back grey there is a tripping device 81 formed as a roller having enlarged side edge or collar portions, similar to the drawing rolls 67 and 68, to engage the exposed marginal portions of the back grey without injuring the ornamentations on the cloth, and causing the cloth to

be looped around the transverse bars 76 as the carrier 75 moves through the heating chamber. In the present instance the tripping roll is supported by a hanger 82 pivotally mounted at 83 at the top of the heating chamber.

The necessary heat for converting the phenol condensation product into its final form, where such product is employed, may be supplied through pipes 84 or any other suitable form of heat medium.

The present invention contemplates means for maintaining the exterior surface of the stenciling cylinder clean and to this end provides cleaning and washing aprons. In the present instance of the invention one of the cleaning aprons 85, Figs. 1 and 4, is drawn from a source of supply, such, for instance, as the apron roll 88, from which the apron passes about the guides 87, a portion of the cleaning apron being held against the exterior surface of the stenciling cylinder between two of the guide rolls 87, as indicated in Fig. 4. After passing about the stenciling cylinder and serving to clean the exterior surface thereof, as described, the cleaning apron 85 is passed back to and wound upon the support 86, Fig. 1.

Mounted upon an arm 89, Fig. 1, pivotally supported at 90 on the machine frame 4 is a stenciling cylinder washing device comprising in construction the tank 91 mounted on the swinging arm 89 and containing within it the guide roll 92. Mounted upon the end portion of the arm 89 is an apron feed roll 93 which is stepped along during machine operation by a pawl 94 acting through a ratchet 95, the pawl 94 being given its actuating movement by an eccentric 96 which may be mounted at the top portion of the machine frame 4 and given its rotating movement by suitable actuating means, which in the present instance is shown as a sprocket chain. The pawl 94 is under the influence of a spring 97 which acts to hold the pawl in its operative position. The tank 91 is preferably mounted on the arm 89 pivotally, or so as to swing, so that should the arm 89 be drawn upwardly to get at the surface of the stenciling cylinder, the liquid in the tank will not be spilled. Passing about the rolls 93, 98 and 99 is a washing apron 100, Fig. 4, which dips under the roll 92 in the tank and is fed along by the roll 93 and ratchet and pawl movement described.

It is sometimes desirable to clean the washing apron, and to this end the machine frame 4 has extended upwardly therefrom the bracket arms 101 pivotally supporting at 102 the brush holding arms 103, the lower end portions of which carry the cleaning brush 104, normally supported to bear upon the adjacent surface of the washing apron 100. Mounted on the support 102 is the

sprocket wheel 105 which may be driven by a sprocket chain 106 from the rubber roll 15 or other rotating element, and in order to impart rotative movement to the brush 104, the sprocket 105 has associated therewith another sprocket 107 the brush chain 108 whereof is caused to rotate the brush and maintain the parts engaged clean and free from dirt.

From the construction described with respect to the cleaning mechanism it will be apparent that should it be desired to inspect the surface of the stenciling cylinder at any time or to get at it for the purpose of repair or otherwise, the arm 89 carrying the washing element may be turned upwardly after having disengaged the pawl 94 from the ratchet and turn the brush 104 upwardly.

What is claimed is:

1. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a container for the ornamenting material within the cylinder having an inclined wall resting upon the inner surface of the cylinder, means for bodily adjusting the container horizontally within the cylinder to vary its position therein, means for regulating the flow of ornamenting material from the container and delivering it between the inner surface of the cylinder and the inclined wall, and means for rotating the stenciling cylinder.

2. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a container for the ornamenting material within the cylinder having an inclined wall resting upon the inner surface of the cylinder, means for bodily adjusting the container in a horizontal and vertical direction within the cylinder for changing the position of the active edge of the inclined wall, means for regulating the flow of ornamenting material from the container and delivering it between the inner surface of the cylinder and the inclined wall, and means for rotating the stenciling cylinder.

3. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a supporting surface between which and the stenciling cylinder the cloth is passed, a container for the ornamenting material supported within the cylinder and including a doctor having its active edge resting against the inner surface of the cylinder, and means for manually adjusting the container laterally and supporting it in the different positions of adjustment to advance or retreat the active edge of the doctor relative to the vertical plane passing through the line of contact between the stenciling cylinder and cloth to be ornamented.

4. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a supporting surface between which and the

stenciling cylinder the cloth is passed, a container for the ornamenting material supported within the cylinder and including a doctor having its active edge resting against the inner surface of the cylinder, means for manually adjusting the container to advance or retreat the active edge of the doctor relative to the vertical plane passing through the line of contact between the stenciling cylinder and cloth to be ornamented, and means for independently adjusting the doctor to different inclined positions and for securing it in the different positions.

5. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle within the cylinder for containing the ornamenting material and comprising a doctor which rests upon the inner surface of the cylinder, and a shutter between which and the doctor the ornamenting material is contained, means for moving the shutter and doctor relatively to permit material to pass to the cylinder, and end guards movable automatically into position to prevent the ornamenting material from escaping at the ends of the receptacle when the shutter and doctor are relatively moved to permit material to pass to the cylinder.

6. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a supporting surface between which and the stenciling cylinder the cloth is passed, a container for the ornamenting material extending lengthwise within the cylinder, a shutter for regulating the flow of the material from the container to the interior surface of the cylinder, a supply pipe within the cylinder above the container for discharging material into the container through different openings along its length, and means for opening and closing said openings.

7. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a supporting surface between which and the stenciling cylinder the cloth is passed, a container for the ornamenting material within the cylinder, a shutter for regulating the flow of the material from the container to the interior surface of the cylinder, a supply pipe extending longitudinally of the cylinder above the container and having a discharge opening above the container, and manually operated means at the discharge opening to regulate the supply of material to the container.

8. In a machine of the character described, the combination of a stenciling cylinder, a supporting surface between which and the stenciling cylinder the cloth is passed, a receptacle for the ornamenting material within the cylinder, means for governing at will the flow of material from the receptacle to the inner surface of the cylinder including a doctor, a supply pipe with-

in the cylinder, and means for heating the several parts within the cylinder.

9. In a machine of the character described, the combination of a cylinder having opening for the passage of material through its cylindrical surface, a supporting surface between which and the cylinder the cloth is passed, a back grey of greater width than the cloth and on which the cloth is supported, means within the cylinder for causing deposits of material to be delivered upon the cloth, and means engaging only the marginal portions of the back grey for advancing the cloth after deposits of material have been made upon the cloth.

10. In a machine of the character described, the combination of a cylinder having opening for the passage of material through its cylindrical surface, a supporting surface between which and the cylinder the cloth is passed, a back grey of greater width than the cloth and on which the cloth is supported, means within the cylinder for causing deposits of material to be delivered upon the cloth, a heating chamber through which the ornamented cloth is passed, and means engaging only the marginal portions of the back grey for advancing the cloth after deposits of material have been made upon the cloth.

11. In a machine of the class described, the combination of a stenciling cylinder, a container for the ornamenting material within the cylinder, a shutter for regulating discharge of material from the container to the inner surface of the cylinder, a roll directly below the stenciling cylinder for holding the work against the cylinder, an apron passing around the roll and between which and the cylinder the cloth is passed, and rolls for holding the apron firmly against the surface of the cylinder from a position sufficiently in advance of the printing point to prevent escape of material from the cylinder in case the machine is stopped when the shutter is in open position.

12. In a machine of the class described, the combination of a stenciling cylinder, a container for the ornamenting material within the cylinder, a fulcrum support for the container which permits the discharge portion of the container to rest upon the inner surface of the stenciling cylinder, and means for adjusting the fulcrum support and container towards and from the vertical plane passing through the printing point.

13. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle for the ornamenting material within the cylinder, a doctor forming a part of the receptacle and having an edge resting on the inner surface of the cylinder, a support for the doctor and receptacle and adjustable to vary the position of the doctor and receptacle within the cylinder, means

for adjusting the doctor angularly upon its support to vary its inclination, and means for permitting passage of the ornamenting material from the receptacle into the space between the end of the doctor and inner surface of the cylinder.

14. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle for the ornamenting material within the cylinder, a doctor forming a part of the receptacle and having an edge resting on the inner surface of the cylinder, means for rigidly securing the doctor to its support in different positions of adjustment to vary its inclination, and means including a shutter manually controlled at a point outside the cylinder for permitting passage of the ornamenting material from the receptacle into the space between the end of the doctor and inner surface of the cylinder.

15. In a machine for ornamenting cloth, the combination of a back grey of greater width than the cloth to be ornamented, means for depositing a phenol condensation product upon the cloth in predetermined design, means for engaging the back grey only at its edges outside the edges of the cloth to carry the ornamented cloth from the point of application of said product, and a heating chamber into which the ornamented cloth is delivered to change the partial condensation product on the cloth to an insoluble non-thermoplastic final product.

16. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle for the ornamenting material within the cylinder comprising a doctor and a shutter, a support within the cylinder connected to the receptacle, a supply pipe mounted on said support and having a discharge passage, and means for turning the pipe upon its support to open or close the discharge passage.

17. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle for the ornamenting material within the cylinder comprising a doctor and a shutter, an angle iron carrying the doctor and adjustable to different positions to vary the inclination of the doctor, a support carried by the angle iron, and a supply pipe carried by the support for delivering ornamenting material to the receptacle.

18. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle within the cylinder for holding a plastic condensation product, a back gray of greater width than the cloth to provide uncovered edges of the back gray at each side of the cloth, means for engaging the back gray only at its exposed edges to carry the back gray and cloth through the ornamenting operation without disturbing the cloth ornamentations, and means for subjecting the ornamented cloth to a heat treatment of

a character to permanently attach the condensation ornamentations to the cloth and render the ornamentations insoluble and non-thermoplastic.

19. In a machine for ornamenting cloth, the combination of a stenciling cylinder, means within the cylinder for applying a plastic condensation product to the inner face of the cylinder to pass through the stencil opening in the cylinder, means for advancing a sheet of cloth to be ornamented and for pressing it against said cylinder to receive the plastic deposits, and means for subjecting the cloth with the deposits thereon to a heat treatment of a character to permanently secure the ornamentation to the cloth and render them hard and insoluble so that they resemble glass beads in durability and appearance.

20. In a machine for ornamenting cloth, the combination of a stenciling cylinder, means within the cylinder for applying a plastic condensation product to the inner face of the cylinder to pass through the stencil openings in the cylinder, means for advancing a sheet of cloth to be ornamented and for pressing it against the cylinder to receive the plastic deposits, and means for subjecting the cloth with the deposits thereon to the action of an agent which renders them hard and insoluble and permanently attached to the cloth so that they resemble glass beads in hardness and durability.

21. In a machine for ornamenting cloth, the combination of a stenciling cylinder having open ends, segmental supports secured to the machine frame and engaging a cylindrical surface of the cylinder, a receptacle for the ornamenting material within the open ended cylinder and supported to engage the inner face of the cylinder, brackets on the machine frame outside the cylinder for supporting the receptacle within the cylinder for adjustment in two directions to vary its position within the cylinder, and a supply pipe within the cylinder movable with the receptacle.

22. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle within the cylinder comprising an inclined doctor the edge of which rests upon the inner surface of the cylinder and a shutter between which and the doctor the ornamenting material is contained, means for bodily adjusting the position of the receptacle within the cylinder and for securing the same in the different adjusted positions, and means for rigidly securing the doctor to its support in different positions of angular adjustment.

23. In a machine for ornamenting cloth, the combination of a stenciling cylinder, a receptacle for the ornamenting material and having an edge that rests against the inner face of the cylinder to apply the material

to the same, means for supporting the receptacle in the cylinder including a fulcrum bar supported at one side of the longitudinal axis of the cylinder, hangers engaging said bar and each having a laterally extending portion to which the receptacle is secured for swinging movement about the fulcrum bar, and means for adjusting the fulcrum bar to vary the position of the receptacle relative to the vertical plane passing through the cylinder. 10

In testimony whereof, I have signed my name to this specification.

LORENZ FLICK.